

WHAT IS CLAIMED IS:

1. A metered-dose inhaler having a metal cannister to hold drug and non-CFC propellant gas, wherein the walls of the cannister are formed by an alloy comprising
5 the following elements in the amounts indicated:
 - Iron of about 40.0 to about 53.0%,
 - Nickel of about 23.0 to about 28.0%,
 - Chromium of about 19.0 to about 23.0%,
 - Molybdenum of about 4.0 to about 5.0%,
 - 10 Manganese of about 0.0 to about 2.0%,
 - Copper of about 1.0 to about 2.0%,
 - Silicon of about 0.0 to about 1.0%,
 - Phosphorous of about 0.0 to about 0.045%,
 - Sulfur of about 0.0 to about 0.035% and
 - 15 Carbon of about 0.0 to about 0.020%;with the proviso that the alloy does not contain aluminum.
2. The metered-dose inhaler as recited in Claim 1, wherein the alloy further comprises nitrogen of about 0.0 to about 0.15%.
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3. The metered-dose inhaler as recited in Claim 1, wherein the alloy further comprises nitrogen of about 0.04 to about 0.15%.
4. The metered-dose inhaler as recited in Claim 1, wherein the alloy is one
25 according to material number 1.4539 of the steel-iron-list of the association of the German iron-works-worker.
5. The metered-dose inhaler as recited in Claim 1, wherein the alloy is as follows:
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 - Chromium about 19.0 to about 21.0%,
 - Nickel about 24.0 to about 26.0%,
 - Molybdenum about 4.0 to about 5.0%,

Copper about 1.0 to about 2.0%,
Manganese about 0.0 to about 2.0%,
Silicon about 0.0 to about 0.5%,
Carbon about 0.0 to about .02%, and
5 the remainder consisting essentially of Iron.

6. The metered-dose inhaler as recited in Claim 1, wherein the cannister
comprises a container and a valve cup with a valve embedded therein, the container
constituting walls of the cannister.

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7. The metered-dose inhaler as recited in Claim 6, wherein the valve cup is
aluminum and is sealed with a gasket relative to the interior of the container.

8. The metered-dose inhaler as recited in Claim 6, wherein the valve contains one
15 or more stainless steel springs, a valve stem, a metering chamber and a valve body,
wherein one or more of the valve stem, the metering chamber and the valve body are
made of material selected from steel, the alloy used for forming walls of the cannister
and a plastic.

20 9. The metered-dose inhaler as recited in Claim 8, wherein the springs are made
of stainless steel, and the valve stem, the metering chamber and the valve body are
made of polybutylene terephthalate.

10. The metered-dose inhaler as recited in Claim 8, wherein the valve stem is
25 sealed off from the valve cup by a gasket or gaskets.

11. The metered-dose inhaler as recited in Claim 10, wherein the gasket or gaskets
are made from ethylene/propylene/diene terpolymer.

30 12. The metered-dose inhaler as recited in Claim 8, wherein the valve cup is made
from the alloy used to form the container.

13. The metered-dose inhaler as recited in Claim 1, wherein walls of the canister can withstand a bursting pressure of more than 30,000 hPa.
14. The metered-dose inhaler as recited in Claim 13, wherein walls of the cannister
5 can withstand a bursting pressure of more than 100,000 hPa.
15. The metered-dose inhaler as recited in Claim 13, wherein walls of the cannister can withstand a bursting pressure of more than 200,000 hPa.
- 10 16. The metered-dose inhaler as recited in Claim 1, wherein walls of the cannister are about 0.1 to about 0.5mm thick.
17. The metered-dose inhaler as recited in Claim 16, wherein walls of the cannister are about 0.15 to about 0.35mm thick.
- 15 18. The metered-dose inhaler as recited in Claim 17, wherein walls of the cannister are about 0.19 to about 0.30mm thick.
19. A metered-dose inhaler according to claim 1, wherein the cannister contains a
20 formulation comprising a fluorohydrocarbon propellant.
20. A metered-dose inhaler according to claim 19, wherein the fluorohydrocarbon propellant is selected from 1,1,1,2 – tetrafluoroethane and 1,1,1,2,3,3,3 – heptafluoropropane.
- 25 21. A metered-dose inhaler according to claim 19, wherein the formulation further comprises one or more electrolytes.
22. A metered-dose inhaler according to claim 19, wherein the formulation further
30 comprises one or more acids.

23. A metered-dose inhaler according to claim 19, wherein the formulation further comprises ethanol.

24. A metered-dose inhaler according to claim 19, wherein the
5 formulation further contains an active substance selected from ipratropium bromide, ipratropium bromide monohydrate, oxitropium bromide, albuterol, tiotropium bromide, fenoterol or fenoterol hydrobromide.

25. A metered-dose inhaler according to claim 24, where the active substance is
10 ipratropium bromide monohydrate.

26. A metered-dose inhaler according to claim 1, wherein the cannister contains the following formulation having the following ingredients in the % by weights as indicated:

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Ipatropium bromide monohydrate	0.001 - 2.5% by weight;
Absolute ethanol	0.001 - 50% by weight;
1,1,1,2 – tetrafluoroethane	50.0 - 99.0% by weight;
Inorganic acid	0.01 - 0.00002 normal; and
20 Water	0.0 - 5.0% by weight.

27. A metered-dose inhaler according to claim 1, wherein the cannister contains the following formulation having the following ingredients in the % by weights as indicated:

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Ipatropium bromide monohydrate	0.001 - 2.5% by weight;
Absolute ethanol	0.001 - 50% by weight;
1,1,1,2 – tetrafluoroethane	50.0 - 99.0% by weight;
Ascorbic acid	0.00015 - 5.0 mg/ml; and
30 Purified water	0.0 - 5.0% by weight.

28. A metered-dose inhaler according to claim 1, wherein the cannister contains the following formulation having the following ingredients in the % by weights as indicated:

5	Ipratropium bromide monohydrate	0.0187% by weight;
	Absolute ethanol	15.0000% by weight;
	1,1,1,2 – tetrafluoroethane	84.47730% by weight;
	Citric acid	0.0040% by weight; and
	Purified water	0.5000% by weight.

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29. A metered-dose inhaler according to claim 1, wherein the cannister contains the following formulation having the following ingredients in the % by weights as indicated:

15	Ipratropium bromide monohydrate	0.0374% by weight;
	Absolute ethanol	15.0000% by weight;
	1,1,1,2 – tetrafluoroethane	84.4586% by weight;
	Citric acid	0.0040% by weight; and
	Purified water	0.5000% by weight.

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30. A metered-dose inhaler according to claim 1, wherein the cannister contains the following formulation having the following ingredients in the % by weights as indicated:

25	Ipratropium bromide monohydrate	0.0748% by weight;
	Absolute ethanol	15.0000% by weight;
	1,1,1,2 – tetrafluoroethane	84.4212% by weight;
	Citric acid	0.0040% by weight; and
	Purified water	0.5000% by weight.

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31. A metered-dose inhaler according to claim 1, wherein the cannister contains the following formulation having the following ingredients in the % by weights as indicated:

5	Fenoterol hydrobromide	0.192% by weight;
	Absolute ethanol	30.000% by weight;
	1,1,1,2 – tetrafluoroethane	67.806% by weight;
	Citric acid	0.002% by weight; and
	Purified water	2.000% by weight.

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